

FIVE-YEAR REVIEW REPORT

**HERCULES 009 LANDFILL SITE
BRUNSWICK, GEORGIA**

SEPTEMBER 1998

Approved by: _____

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Date: _____

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SECTION 1

BACKGROUND

1.1 INTRODUCTION

The Hercules 009 Landfill (Hercules) Site was added to the National Priorities List (NPL) in September 1984 following groundwater monitoring by the Georgia Environmental Protection Division (GA EPD). The remedial investigation/feasibility study (RI/FS) found toxaphene contamination in soils, sediments, and groundwater. On June 27, 1991, due to the length of time required to complete the RI/FS and the immediate nature of the threat posed by contaminated groundwater, EPA issued an interim action Record of Decision (ROD), also referred to as the Operable Unit 2 (OU2) ROD, to provide an alternate water supply to residences and a church served by private groundwater wells. On March 25, 1993, EPA issued a ROD for Operable Unit 1 (OU1) of the site. A description of the remedial action selected in the OU1 is presented in Section 1.4 of this report.

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), Section 121 (c), and Section 300.430 (f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP), a statutory five-year review is required for remedial actions selected on or after October 17, 1986. The review must be completed within five years of the initiation of the remedial action, and every five years thereafter, for sites which will not allow for unlimited use and unrestricted exposure after attainment of the performance standards stated in the ROD.

EPA Region 4 decided that a Level I Five-Year Review was required at the Hercules site to confirm that the remedial action adequately protects human health and the environment. This review examined the OU2 remedial action to determine if the action is operating and functioning as designed and institutional controls are in place and are protective. The review is also a less extensive examination of the OU1 remedy where the remedial action is ongoing.

1.2 SITE LOCATION AND DESCRIPTION

The Hercules site is located in the eastern portion of Glynn County, Georgia, approximately two miles south of Interstate 95 and one-half mile north of the City of Brunswick. The Site is a 16.5 acre property that is bordered by Georgia State Highway 25 (Spur 25) on the west; an automobile dealership on the north; a juvenile slash pine forest on the east; and several homes, a church, a school, and a strip shopping center to the south/southeast of the property. A shopping mall, a bank, and a restaurant are located approximately 1,000 feet north of the landfill. The property is fenced and has only one entrance through a locked gate.

Seven acres on the north end of the property were operated as an industrial landfill by Hercules between 1976 and 1980 under a permit by the GA EPD. The permit allowed for the disposal of

wastewater sludge generated from the production of toxaphene at the Hercules Brunswick Plant. Six disposal cells were constructed at the northern end of the property to receive sludge for disposal. During its years of operation, the Site was monitored by the GA EPD.

1.3 SITE HISTORY

Hercules began manufacturing toxaphene, an agricultural pesticide, in 1948 and continued production through 1980. Toxaphene received widespread use in the southeastern United States to control boll weevils on cotton as well as mites and ticks on cattle, until EPA banned its use in 1982. The Site had been used by the State as a borrow pit for soil during the construction of Spur 25. Hercules was issued a permit in 1975 by the GA EPD to use seven acres at the northern end of the property as a landfill to dispose of wastewater sludge generated during the manufacturing processes.

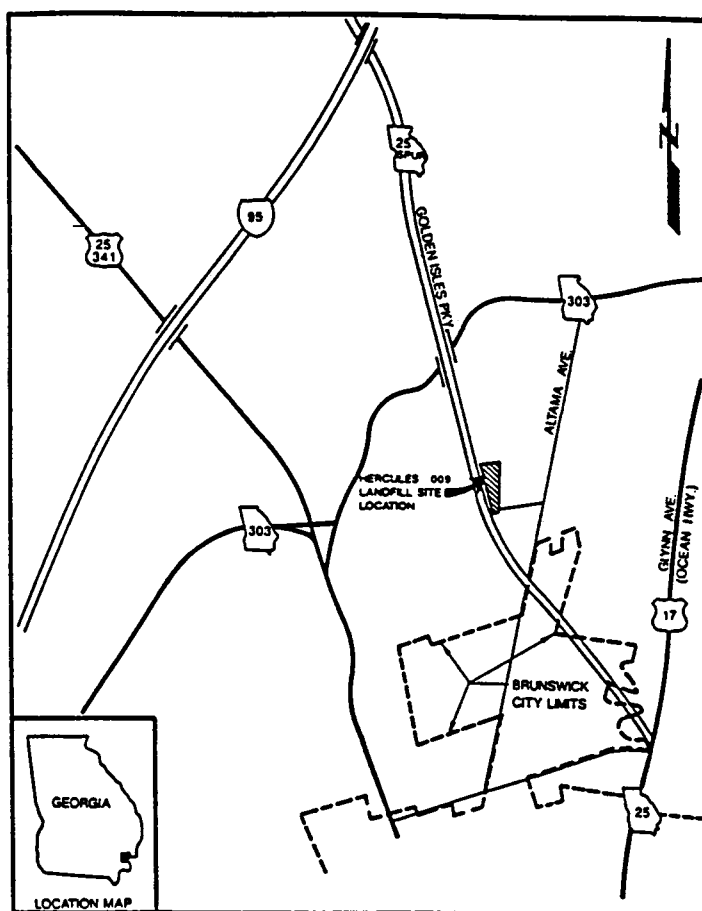


Figure 1
Map of Area Surrounding Hercules Site

The 009 Landfill was constructed at the northern end of the property as six cells, each approximately 100 to 200 feet wide (north-south direction) and 400 feet long (west-east direction). See Figure 2 for a map of the Site. The thickness of the toxaphene sludge in the cells was reported to be six to seven feet. Individual cells were reported to be lined with a soil/bentonite clay mixture across the bottom of the cell, and along the bermed walls

The sludge deposited in the 009 Landfill consisted of very fine soils and finely crushed limestone material. Toxaphene adsorbed to this material. Reportedly, the wastewater treatment sludge consisted of about one percent toxaphene by weight and 50 percent solids by weight. The sludge was transported to the landfill, in bulk by truck. Trucks hauling material to the Site reportedly entered the landfill through two entrances, one from Benedict Road (south side), the other located along Spur 25 (west side). Typically the sludge was placed directly into the landfill. However, sludge was occasionally staged near the southeastern corner of the 009 Landfill prior to placement. In addition to the sludge, the 009 Landfill was also used for disposal of empty

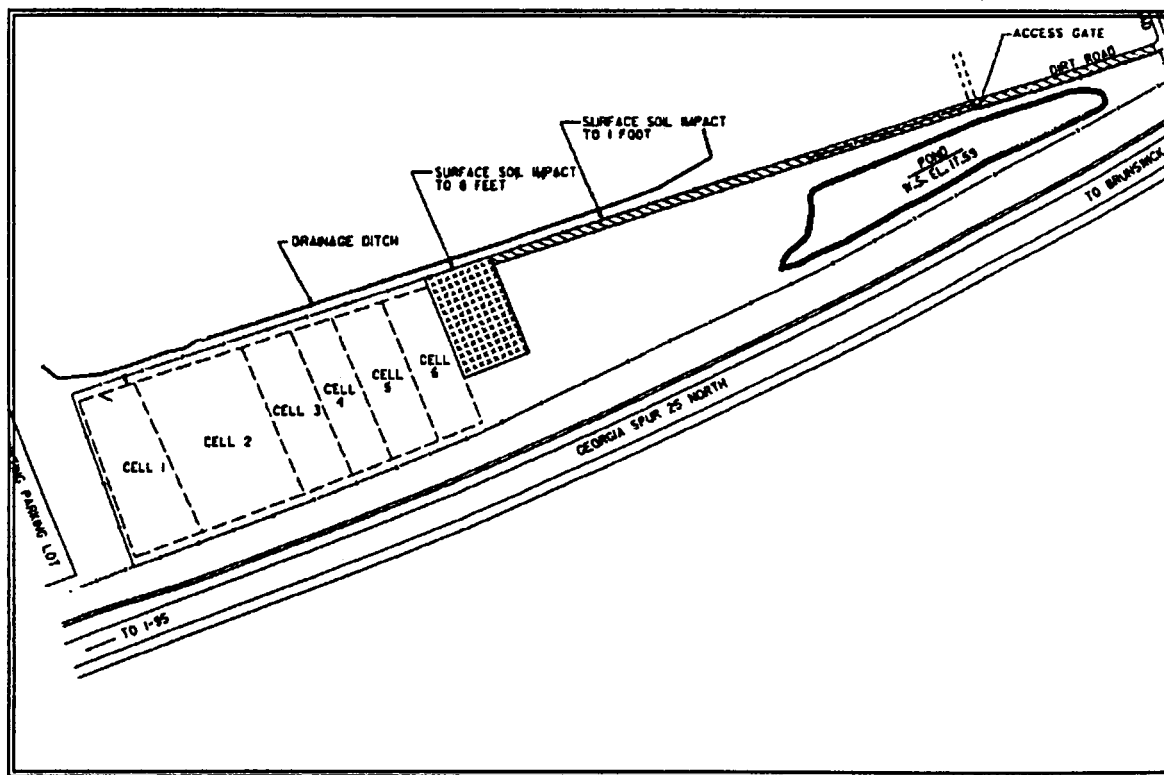


Figure 2
Map of the Hercules 009
Landfill Site

toxaphene product drums, and toxaphene contaminated glassware, rubble, and trash. Disposal of this material was primarily limited to Cell 1. Hercules estimated that approximately 33,00 cubic yards of sludge was disposed in the landfill. The cells were covered with 24 to 30 inches of "stump dirt" mixed with boiler ash. The term "stump dirt" refers to soil that is entrained on pine stumps purchased by the Hercules Brunswick Plant. Resins and essential oils are extracted from these stumps.

In March 1980 during a regular inspection, GA EPD collected soil and water samples from drainage ditches around the Site which contained toxaphene. As a result, GA EPD canceled Hercules' permit and the 009 Landfill was closed under state requirements. All cells in the landfill were closed prior to 1983 in accordance with then-existing GA EPD Solid Waste Management Regulations. The final contour of the top of the landfill had a slope of approximately one percent to prevent pooling and to minimize any rainfall soaking into the landfill. The sides of the unit had a slope of about ten percent. The earthen cover was seeded to control erosion with grasses that have proven to grow well in the Brunswick area. A drainage ditch is located next to the landfill to control runoff from the surrounding area. Glynn County periodically excavates the sediments from this ditch to ensure adequate drainage capacity.

EPA inspected the Site and, in 1984, placed the landfill on the National Priority List (NPL). GA EPD then began negotiations with Hercules to perform an RI/FS. EPA took over as the lead agency for Superfund activities at the Site at the end of 1987 and entered into an Administrative Order on Consent with Hercules in July 1988 for Hercules to perform the RI/FS. During the RI, EPA discovered toxaphene contamination in the groundwater. Residents located on Benedict Road and Nix Lane near the Site used groundwater for their drinking water source. Because of the length of time required to complete the RI/FS and the immediate nature of the threat at the Site, EPA issued an interim action Record of Decision (Operable Unit 2) on June 27, 1991. The remedy selected in this Record of Decision (ROD) was to extend the municipal water lines from the Brunswick Water System along Benedict Road and Nix Lane to residences and the Beverly Shores Baptist Church. The residences and the church were connected to the water line.

The RI/FS was completed in 1992. EPA issued the ROD for Operable Unit 1 on March 25, 1993 selecting in-situ stabilization for the contaminated soils. Remedial design for this Operable Unit is nearly completed. This five-year review covers the remedy selected for Operable Unit 2, extension of the water line and connection of residences and the church to the water line.

1.4 DESCRIPTION OF REMEDIAL ACTION

In the ROD, EPA selected a remedy which extended the municipal water lines from the Brunswick Water Service along Benedict Road and Nix Lane. With the owner's permission, all the residences and the Beverly Shores Baptist Church were connected to the municipal water system. Private wells immediately downgradient of the landfill were replaced by the municipal

water system. The municipal water hook-ups achieved substantial risk reduction at a early stage in the Superfund process.

1.5 ARARs REVIEW

Section 121(d)(2)(A) of CERCLA incorporates into the law the CERCLA Compliance Policy, which specifies that Superfund remedial actions must meet any Federal standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Also, included is the provision that State ARARs must be met if they are more stringent than Federal requirements. The ROD did not identify any ARARs for this action at the Site.

SECTION 2

SITE CONDITIONS

2.1 SUMMARY OF SITE INSPECTION

Because of the limited nature of this interim action, EPA did not conduct a site inspection. Interviews were conducted with appropriate personnel.

2.2 SUMMARY OF INTERVIEWS

During the month of January 1998, EPA contacted residents affected by the interim action for the Site. The EPA RPM spoke with residents at the following addresses by telephone to confirm that their houses were still connected to the municipal water service.

Clifford J. Morgan	239 Benedict Road
Donnie White	237 Benedict Road
Mrs. W.W. Woodham	236 Benedict Road
Robert Clark	235 Benedict Road
W. J. Morgan	232 Benedict Road
Donald Sadowski	231 Benedict Road
Angela Whittington	226 Benedict Road

All persons contacted by EPA confirmed that their homes were connected to the municipal water service. EPA attempted several times to contact the Beverly Shores Baptist Church, but was unable to do so.

EPA also contacted the Brunswick Water and Wastewater Department and spoke with Mr. William Francis, Assistant Director. Mr. Francis said that, to the best of his knowledge, the homes were still connected and he knew of no problems with the connections.

EPA contacted Mike Laney, the Georgia Environmental Protection Division Project Manager. Mr. Laney said that he had no concerns regarding this action.

2.3 AREAS OF NON-COMPLIANCE

EPA did not observe any areas of non-compliance as a result of the site interviews.

SECTION 3

RECOMMENDATIONS

3.1 TECHNOLOGY/ADMINISTRATIVE RECOMMENDATIONS

EPA has no recommendations to make as result of this five-year review.

3.2 STATEMENT OF PROTECTIVENESS

Based on the telephone interviews, this interim remedial action appears to be performing as intended. This action removed the threat to human health posed by toxaphene contamination in the surficial aquifer. Subsequent actions are being taken to address the principal threat posed by the Site. These actions were described in the final RI/FS reports and the ROD for Operable Unit 1.

3.3 NEXT REVIEW

The next review should be coordinated with the five-year review for Operable Unit 1 of the Site. The review should be conducted on or before March 2003.